

FORM PTO-1390  
(REV 11-98)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

TRANSMITTAL LETTER TO THE UNITED STATE  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. 371

3436-009

U.S. APPLICATION NO. (If known, see 37 CFR 1.5

09/581,887

INTERNATIONAL APPLICATION NO  
PC7/EP98/08324INTERNATIONAL FILING DATE  
18 December 1998 (18.12.98)PRIORITY DATE CLAIMED  
19 December 1997 (13.12.97)

TITLE OF INVENTION METHOD OF OPERATING A WIND POWER INSTALLATION AND A WIND POWER INSTALLATION

APPLICANT(S) FOR DO/EO/US

WOBBEN, Alovs

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☐ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☒ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371
3. ☐ This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1)
4. ☐ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☐ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
  - a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☐ has been transmitted by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ A translation of the International Application into English (35 U.S.C. 371(c)(3)).
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
  - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☐ have been transmitted by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☐ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3))
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

## Items 11. to 16. below concern document(s) or information included:

11. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☐ A **FIRST** preliminary amendment.  
☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☒ Other items or information: Return Receipt Postcard;

07/21/2000 PREPARED 0000007E 0953.187

01 FEB 1998

110.00 EP

## CALCULATIONS PTO USE ONLY

17. ☐ The following fees are submitted:**BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :**Neither international preliminary examination fee (37 CFR 1.482)  
nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO  
and International Search Report not prepared by the EPO or JPO ..... \$970.00International preliminary examination fee (37 CFR 1.482) not paid to  
USPTO but International Search Report prepared by the EPO or JPO. .... \$840.00International preliminary examination fee (37 CFR 1.482) not paid to USPTO but  
international search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... \$760.00International preliminary examination fee paid to USPTO (37 CFR 1.482)  
but all claims did not satisfy provisions of PCT Article 33(1)-(4) ..... \$670.00International preliminary examination fee paid to USPTO (37 CFR 1.482)  
and all claims satisfied provisions of PCT Article 33(1)-(4) ..... \$96.00**ENTER APPROPRIATE BASIC FEE AMOUNT =**

\$ 840

Surcharge of \$130.00 for furnishing the oath or declaration later than ☐ 20 ☒ 30  
months from the earliest claimed priority date (37 CFR 1.492(e)).

\$ 130

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE
Total claims	7 - 20 =	0	X \$18.00
Independent claims	3 - 3 =	0	X \$78.00
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ \$260.00

**TOTAL OF ABOVE CALCULATIONS =**

\$ 970

Reduction of 1/2 for filing by small entity, if applicable. A Small Entity Statement  
must also be filed (Note 37 CFR 1.9, 1.27, 1.28).**SUBTOTAL =**

\$

Processing fee of \$130.00 for furnishing the English translation later than ☐ 20 ☐ 30  
months from the earliest claimed priority date (37 CFR 1.492(f)).

\$

**TOTAL NATIONAL FEE =**

\$

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be  
accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property +

\$

**TOTAL FEES ENCLOSED =**

\$ \*550

\*NOTE: On 19 June 2000, the undersigned representative submitted \$420. However,  
applicant is not entitled to Small Entity Status as anticipated. Therefore, we hereby submit  
the balance due to cover the entire filing fee.

Amount to be:

refunded

\$

charged

\$

a. ☒ A check in the amount of \$ 550 to cover the above fees is enclosed.b. ☐ Please charge my Deposit Account No. 07-1730 in the amount of \$ to cover the above fees.  
A duplicate copy of this sheet is enclosed.c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any  
overpayment to Deposit Account No. 07-1730. A duplicate copy of this sheet is enclosed.**NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.**

SEND ALL CORRESPONDENCE TO:

WEISZ, Tiberiu.  
GOTTLIEB RACKMAN & REISMAN PC  
270 Madison Avenue  
New York, New York 10016-0610  
US


SIGNATURE:

WEISZ, Tiberiu

NAME

29,876

REGISTRATION NUMBER

FORM PTO-1390 (REV 11-98)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTORNEY'S DOCKET NUMBER 3436-009	
<b>TRANSMITTAL LETTER TO THE UNITED STATE          DESIGNATED/ELECTED OFFICE (DO/EO/US)          CONCERNING A FILING UNDER 35 U.S.C. 371</b>				U.S. APPLICATION NO. (If known, see 37 CFR 1.5) <div style="font-size: 1.5em; font-weight: bold;">09/581887</div>	
INTERNATIONAL APPLICATION NO PCT/EP98/08324		INTERNATIONAL FILING DATE 18 December 1998 (18.12.98)		PRIORITY DATE CLAIMED 19 December 1997 (13.12.97)	
TITLE OF INVENTION METHOD OF OPERATING A WIND POWER INSTALLATION AND A WIND POWER INSTALLATION					
APPLICANT(S) FOR DO/EO/US <div style="text-align: center;">WOBBEN, Aloys</div>					
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information					
<ol style="list-style-type: none"> <li>1. <input checked="" type="checkbox"/> This is a <b>FIRST</b> submission of items concerning a filing under 35 U.S.C. 371.</li> <li>2. <input type="checkbox"/> This is a <b>SECOND</b> or <b>SUBSEQUENT</b> submission of items concerning a filing under 35 U.S.C. 371</li> <li>3. <input type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1)</li> <li>4. <input checked="" type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.</li> <li>5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2))             <ol style="list-style-type: none"> <li>a. <input type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau).</li> <li>b. <input checked="" type="checkbox"/> has been transmitted by the International Bureau.</li> <li>c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US).</li> </ol> </li> <li>6. <input checked="" type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)).</li> <li>7. <input type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))             <ol style="list-style-type: none"> <li>a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau).</li> <li>b. <input type="checkbox"/> have been transmitted by the International Bureau.</li> <li>c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired.</li> <li>d. <input type="checkbox"/> have not been made and will not be made.</li> </ol> </li> <li>8. <input type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).</li> <li>9. <input type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).</li> <li>10. <input type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).</li> </ol>					
<b>Items 11. to 16. below concern document(s) or information included:</b>					
<ol style="list-style-type: none"> <li>11. <input checked="" type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98.</li> <li>12. <input type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.</li> <li>13. <input checked="" type="checkbox"/> A <b>FIRST</b> preliminary amendment.  <input type="checkbox"/> A <b>SECOND</b> or <b>SUBSEQUENT</b> preliminary amendment.</li> <li>14. <input type="checkbox"/> A substitute specification.</li> <li>15. <input type="checkbox"/> A change of power of attorney and/or address letter.</li> <li>16. <input checked="" type="checkbox"/> Other items or information:  <div style="margin-left: 40px;">           Return Receipt Postcard; Preliminary Amendment; Check \$ 420; PCT Written Opinion; Response to Written Opinion in German;            International Search Report;         </div> </li> </ol>					
 <div style="font-size: 1.5em; font-weight: bold;">22440</div> PATENT TRADEMARK OFFICE					

[illegible]

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
**DESIGNATED/ELECTED OFFICE OF THE**  
**PATENT COOPERATION TREATY**

Applicant : WOBLEN, Aloys  
Serial No. : To Be Assigned  
Filing Date : Herewith  
International  
Application No. : PCT/EP98/08324  
International  
Filing Date : 18 December 1998 (18.12.98)  
Earliest Priority : 19 December 1997 (19.12.97)  
Title : METHOD OF OPERATING A WIND POWER  
INSTALLATION AND A WIND POWER INSTALLATION  
Examiner : To Be Assigned  
Group Art Unit : To Be Assigned

June 19, 2000

Box PCT  
Attention: National Phase Processing Division  
Assistant Commissioner for Patents  
Washington, D.C. 20231

**CERTIFICATE OF EXPRESS MAIL UNDER 37 CFR §1.10**

Express Mail Label # EL291839883US  
Date of Deposit June 19, 2000

I hereby certify that this paper and/or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service on the date indicated above and is address to: Box PCT, Attn: National Phase Processing Division, Asst. Commissioner for Patents, Washington, DC 20231.

*Belinda J. Hunter*  
Belinda Hunter

**PRELIMINARY AMENDMENT**

SIR :

Please amend the subject application as follows:

**IN THE CLAIMS:**

Cancel the present claims 1-8.

Insert the following new claims 1-7:

-- 1. A method of operating a wind power installation comprising an electric generator drivable by a rotor for supplying electrical power into an electrical network (6), in particular its connected consumer (8), characterised in that the power supplied to the network (6) by the generator is regulated in respect of its level in dependence on the level of the electrical voltage applied to the network (6).

2. A method as set forth in claim 1 characterised in that the level of the power which is supplied by the generator and fed into the network (5) is regulated in dependence on an electrical voltage applied at the network feed-in-point (21).

3. A method as set forth in claim 2 characterised in that the electrical voltage is produced in the form of ac voltage at a predeterminable frequency.

4. A method as set forth in claim 3 characterised in that the predeterminable frequency substantially corresponds to the network frequency.

5. A wind power installation, in particular for carrying out a method as set forth in one of the preceding claims, comprising a rotor (4) and an electric generator coupled to the rotor (4) for supplying electrical power to an electrical network (6), characterised by a regulating device having a voltage sensor for sensing the level of an electrical voltage applied to the network (6) so that the power supplied to the network (6) by the generator can be

regulated in respect of its level in dependence on the voltage sensed by the voltage sensor.

6. A wind power installation as set forth in claim 5 characterised in that the regulating device has a microprocessor.

7. A method of operating an energy-generating apparatus comprising an electric generator for supplying electrical power to an electrical network, in particular that of the connected consumers, wherein the power generated fluctuates, characterised in that the power supplied to the network by the generator is regulated in respect of its level in dependence on the level of the electrical voltage applied to the network. --

#### **REMARKS**

Applicant submits the above-stated amendments in English which correspond with those filed in the German language under PCT Article 34 in the international application.

Dated: June 19, 2000  
New York, New York

Respectfully submitted,

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270 Madison Avenue  
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Tiberiu WEISZ  
Reg. No. 29,876

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Method of operating a wind power installation and a wind power installation

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The present invention concerns a method of operating a wind power installation comprising an electric generator drivable by a rotor for outputting electrical power to an electrical consumer, in particular an electrical network.

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The invention further concerns a wind power installation comprising a rotor and an electric generator coupled to the rotor for outputting electric power to an electrical consumer, in particular an electrical network.

20

In the known wind power installations for generating electrical energy from wind the generator is operated in parallel relationship with the electrical consumer, frequently an electrical network. During operation of the wind power installation the electric power produced by the generator varies in dependence on the prevailing wind speed and thus the wind power. The consequence of this is that the electrical generator voltage is also variable in dependence on the wind power. That gives rise to the

25

following problems:

30

In the event of the electrical power generated being fed into an electrical network, for example a public power supply network, there is an increase in the network voltage at a connecting point or network junction point at which the electrical generator power is fed into the network. Particularly in the event of severe changes in the generator voltage, there are severe unwanted changes in the network voltage.

Under particular circumstances it can happen that the network voltage in the supply network rises to an undesirably high value. That is the



case in particular when the power taken on the part of the consumers is very low while a high level of electrical power is being fed into the supply network. Such situations can occur for example at night when the electrical consumption in households is fairly low while with a strong wind, a wind power converter provides the power supply network with a correspondingly high level of electrical power. If the voltage in the supply network or at the network connection point of the wind power installation rises above a predetermined value, the wind power installation or the generator thereof has to be disconnected from the network and the wind power installation would have to be completely shut down from the network because it is no longer possible to take any power. A shut-down procedure of that kind results in an interruption in the feed of electrical power, which is unwanted equally from the point of view of the operator of the wind power installation and the operator of the network.

It is generally known from German patent specification No 368 799, DE-OS No 44 28 085 and DE-OS No 30 23 195 that, in installations such as wind power installations or solar generators, the power produced by the generator fluctuates, which gives rise to the above-described problems in terms of the feed of power into the network.

The object of the present invention is to provide a method of operating a wind power installation, and a wind power installation, which avoid the disadvantages of the state of the art and in particular avoid voltage over-fluctuations at the consumer, in particular an electrical network, and unwanted shut-down of the wind power installation.

In a method of the kind set forth in the opening part of this specification, that object is attained by the invention in that the power supplied to the network by the wind power generator is regulated in dependence on the applied network voltage of the power supply network.

In an apparatus of the kind set forth in the opening part of this specification, the object of the invention is attained by a regulating device having a voltage sensor for sensing an electrical voltage applied at the consumer, for example network voltage, so that the power supplied to the

consumer by the generator can be regulated in dependence on the voltage sensed by the voltage sensor.

As described, in the case of energy generation, there can be a fluctuation in the energy which can be generated, which in the case of wind power installations is governed by natural conditions in dependence on wind strength. Those fluctuations however are not the basic starting point of the invention. On the contrary, the invention is concerned with the problem that fluctuations in power consumption also occur on the consumer side, which has an effect in the form of a fluctuating network voltage. It is known that such network voltages are critical because electrical equipment - in particular computers - are frequently only inadequately safeguarded against critical voltage fluctuations. The invention therefore provides that not just the fluctuation in energy generation on the generator side but also the fluctuation on the consumer side is taken into consideration in regard to the feed of energy into the system so that the electrical voltage produced is regulated at the feed-in point to the desired reference value.

The invention avoids unwanted fluctuations in the voltage applied at the consumer, in particular the electrical voltage in a network, insofar as the electrical power delivered by the generator is regulated in dependence on the voltage of the consumer or the network. That also avoids unwanted voltage fluctuations which can arise out of changes in wind power.

A further advantage of the invention is that, even with very substantial changes in wind power, the wind power installation does not need to be shut down in order to avoid fluctuations in the network system. In accordance with the invention, even with considerable changes in wind power, the wind power installation continues to be operated without changes in network voltage occurring. For that purpose the regulating device according to the invention is equipped with voltage sensors for sensing the voltage at the consumer or the network.

In addition, with a constant wind power, it is possible by means of the invention to compensate for network fluctuations as regularly occur in electrical networks for energy power supply as some consumers connected to the network from time to time draw large amounts of power from the

network, and that can result in a reduction in voltage. In the case of such a reduction in voltage the wind power installation according to the invention can feed an increased amount of electrical power into the network and in that way it can compensate for voltage fluctuations. For that purpose the  
5 feed-in voltage is raised at the interface between the wind power installation and the network, for example on the basis of the network voltage value which is sensed in accordance with the invention.

In accordance with a preferred embodiment of the method according to the invention the power supplied is regulated by the electrical voltage  
10 produced being regulated to a desired reference value. In this case network voltage compensation can be implemented in a particularly simple manner, which - as described hereinbefore - can occur when a consumer connected to the network requires a large amount of power.

In accordance with a further preferred embodiment of the invention  
15 the electrical voltage is produced in the form of ac voltage at a predeterminable frequency. In that way the power fed into the system can be adapted to the conditions in the network and the network frequency can be influenced thereby. The predeterminable frequency desirably corresponds to the network frequency.

20 A further development of the wind power installation according to the invention advantageously involves a regulating device having a microprocessor as digital regulation can be implemented in that way.

The invention is described hereinafter by means of an embodiment of a method of operating a wind power installation with reference to the  
25 drawings in which:

Figure 1 is a diagrammatic view of a wind power installation which feeds into a network,

Figure 2 shows a regulating device according to the invention for the operation of a wind power installation, and

30 Figure 3 is a diagram showing the relationship between wind power and network or mains voltage.

A wind power installation 2 diagrammatically illustrated in Figure 1 and having a rotor 4 is connected to an electrical network 6 which for

example can be a public network. Connected to the network are a plurality of electrical consumers 8.

The electric generator (not shown in Figure 1) of the wind power installation 2 is coupled to an electrical control and regulating arrangement 10 which firstly rectifies the alternating current generated in the generator and then converts it into an ac voltage which corresponds to the network frequency. Instead of a network 6, it would also be possible to supply electrical energy to an individual consumer from the wind power installation 2. The control and regulating arrangement 10 has a regulating device according to the invention.

Figure 2 shows the regulating device according to the invention. The diagrammatically illustrated rotor 4 is coupled to a generator 12 producing electrical power which depends on the wind speed and thus the wind power. The ac voltage generated in the generator 12 can firstly be rectified and then converted into an ac voltage which is of a frequency corresponding to the network frequency.

The network voltage is ascertained at a location in the network 6 (Figure 1) by means of a voltage sensor (not shown). An optimum generator voltage  $U_{ref}$  (see Figure 2) is calculated in dependence on the ascertained network voltage, possibly by means of a microprocessor which is shown in Figure 4. The generator voltage  $U_{actual}$  is then regulated to the desired voltage value  $U_{ref}$  by means of the regulating device. That regulation of the generator voltage provides for regulation of the electrical power which is delivered by the generator 12 to a consumer, in the illustrated embodiment being the network 6, and which is fed into the network 6. By virtue of a feed regulated in that way of the power delivered by the wind power installation, into the network, fluctuations in the network voltage in the network 6 can be avoided or considerably reduced.

The diagram illustrated in Figure 3 shows the relationship between the power which is entered on the ordinate and which is delivered by the wind power installation and the network voltage which is plotted on the abscissa. If the network voltage differs only little from its reference value which is between the voltage values  $U_{min}$  and  $U_{max}$  then a uniform level of

power is delivered to the network by the generator, corresponding to the upper straight portion of the curve (straight line parallel to the abscissa). If the network voltage rises further and exceeds a value which is defined by the point P1, the power fed into the network is reduced. When the value  
5  $U_{max}$  is reached, then the power fed into the network is equal to zero (point P2). Even in the case where there is a high level of wind power, no power is fed into the network at point P2. If the wind power falls sharply, then only a reduced amount of power can still be fed into the network. Even if no further power is delivered on the part of the wind power converter, the  
10 latter - although without delivering power - continues to be operated so that power delivery can always be effected as soon as the mains voltage has again assumed a value between  $U_{min}$  and  $U_{max}$ .

Figure 4 shows essential components of the control and regulating arrangement 10 in Figure 1. The control and regulating arrangement 10  
15 has a rectifier 16 in which the ac voltage produced in the generator is rectified. A frequency converter 18 connected to the rectifier 16 converts the initially rectified dc voltage into an ac voltage which is fed into the network 6 by way of the lines L1, L2 and L3, in the form of a three-phase ac voltage. The frequency converter 18 is controlled by means of a  
20 microcomputer 20 which is part of the overall regulating device. For that purpose the microprocessor 20 is coupled to the frequency converter 18. The input parameters for regulation of the voltage with which the electrical power afforded by the wind power installation 2 is fed into the network 6 are the current network voltage  $U$ , the network frequency  $f$ , the electrical  
25 power  $P$  of the generator, the reactive power factor  $\cos\phi$  and the power gradient  $dP/dt$ . Regulation in accordance with the invention of the voltage to be fed into the network is implemented in the microprocessor 20.

Figure 5 shows the variation in respect of time of the voltages and currents of the three phases of the network 6.

## CLAIMS

1. A method of operating a wind power installation comprising an electric generator drivable by a rotor for supplying electrical power to an electrical network (6), in particular its connected consumers (8), characterised in that the power supplied to the network (6) by the generator is regulated in dependence on an electrical voltage applied to the network (6).

2. A method as set forth in claim 1 characterised in that the power which is supplied by the generator and fed into the network (6) is regulated in dependence on an electrical voltage applied at the network feed-in point (21).

3. A method as set forth in claim 1 and/or 2 characterised in that the supplied power is regulated by the electrical voltage produced being regulated to a desired reference value ( $U_{ref}$ ).

4. A method as set forth in claim 3 characterised in that the electrical voltage is produced in the form of ac voltage at a predeterminable frequency.

5. A method as set forth in claim 4 characterised in that the predeterminable frequency substantially corresponds to the network frequency.

6. A wind power installation, in particular for carrying out a method as set forth in one of the preceding claims, comprising a rotor (4) and an electric generator coupled to the rotor (4) for supplying electrical power to an electrical network (6), characterised by a regulating device having a voltage sensor for sensing an electrical voltage applied to the network (6) so that the power supplied to the network (6) by the generator can be regulated in dependence on the voltage sensed by the voltage sensor.

7. A wind power installation as set forth in claim 6 characterised in that the regulating device has a microprocessor.

8. A method of operating an energy-generating apparatus comprising an electric generator for supplying electrical power to an electrical network, in particular that of the connected consumers, wherein the power generated fluctuates, characterised in that the power supplied to the network by the generator is regulated in dependence on an electrical voltage applied to the network.

### Abstract

#### Method of operating a wind power installation and a wind power installation

The present invention concerns a method of operating a wind power installation comprising an electric generator drivable by a rotor for outputting electrical power to an electrical consumer, in particular an electrical network.

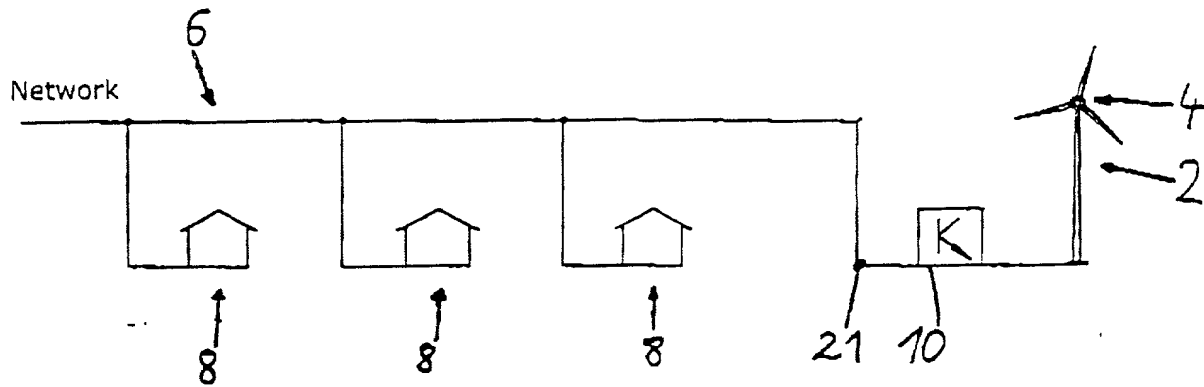
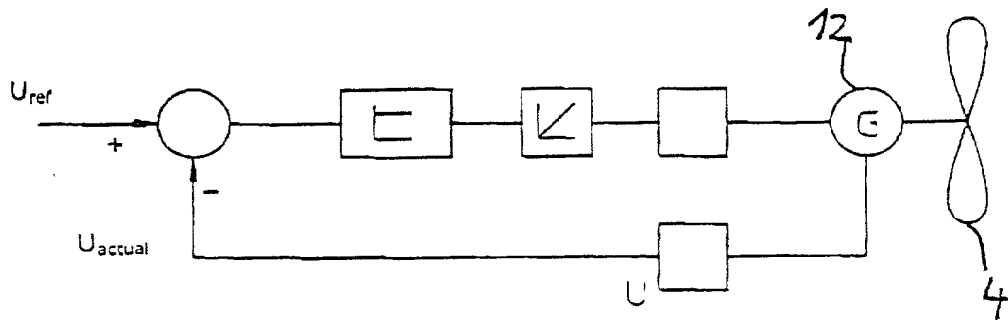
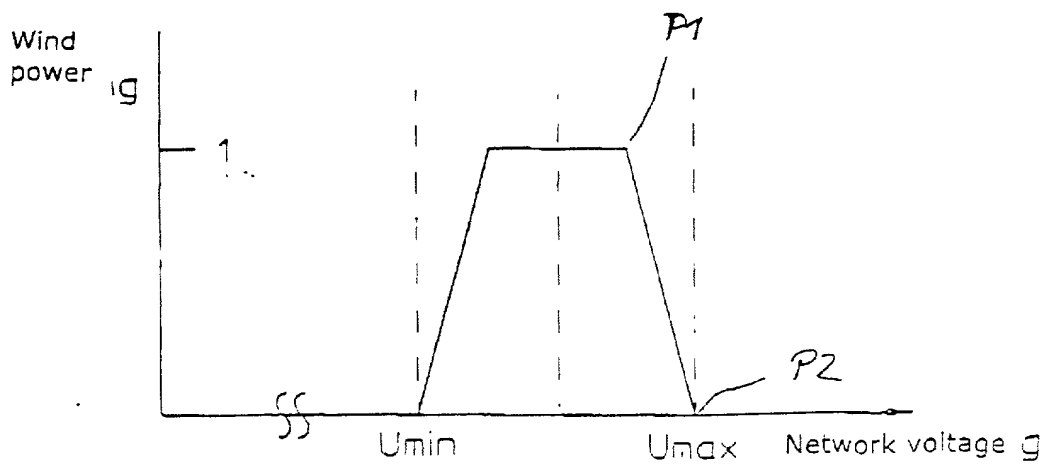
The invention further concerns a wind power installation comprising a rotor and an electric generator coupled to the rotor for outputting electric power to an electrical consumer, in particular an electrical network.

The object of the present invention is to provide a method of operating a wind power installation, and a wind power installation, which avoid the disadvantages of the state of the art and in particular avoid voltage over-fluctuations at the consumer, in particular an electrical network, and unwanted shut-down of the wind power installation.

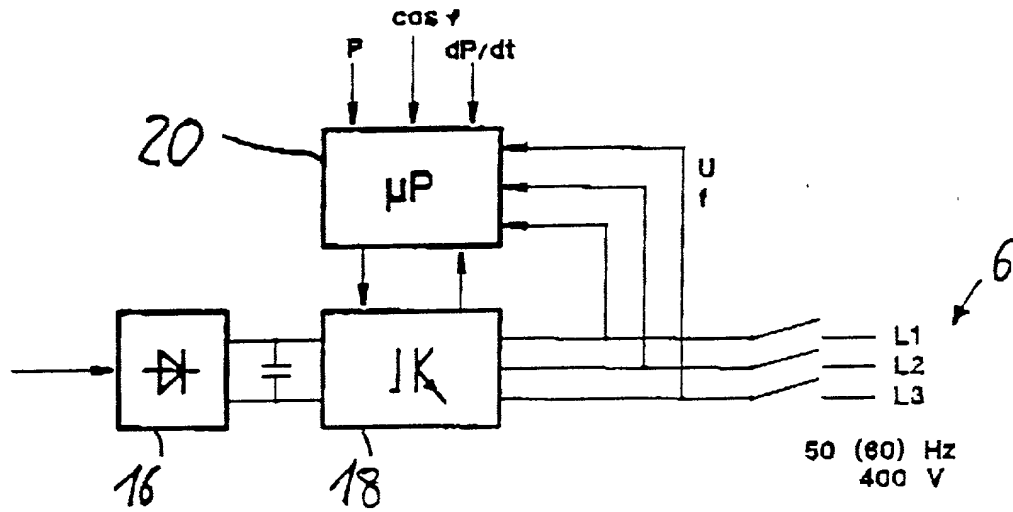
In a method of the kind set forth in the opening part of this specification, that object is attained by the invention in that the power delivered to the network by the wind power generator is regulated in dependence on the applied network voltage of the power supply network.



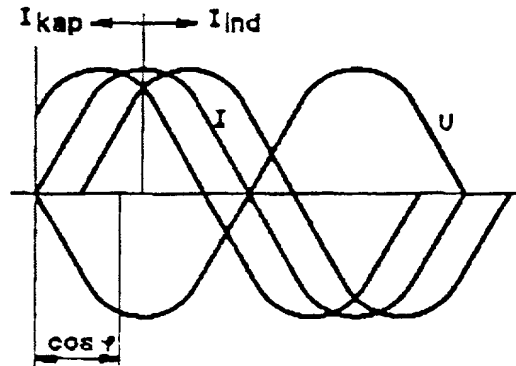
1/2

**Fig. 1****Fig. 2****Fig. 3**

**Fig. 4**



**Fig. 5**



3436-009

**Combined Declaration and Power of Attorney**

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled **METHOD OF OPERATING A WIND POWER INSTALLATION AND A WIND POWER INSTALLATION** the specification of which

(check one) ☐ is attached hereto. ☒ was filed on June 19, 2000, as United States Application Serial No. 09/581,887 or PCT International Application No. \_\_\_\_\_, and was amended on \_\_\_\_\_ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 (a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, or Title 35, United States Code, §371, listed below and have also identified below, by checking the appropriate box, any foreign application for patent or inventor's certificate, or of any PCT application having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)			Priority claimed	
<u>PCT/E98/08324</u>	<u>Europe</u>	<u>18 December 1998</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(Number)	(Country)	Day/month/year filed	Yes	No
<u>197 56 777.0</u>	<u>Germany</u>	<u>19 December 1997</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(Number)	(Country)	Day/month/year filed	Yes	No

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below:

_____ (Application No.)	_____ (Filing Date)
_____ (Application No.)	_____ (Filing Date)

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

_____ (Application No.)	_____ (Filing date)	_____ (Status - patented, pending, abandoned)
_____ (Application No.)	_____ (Filing date)	_____ (Status - patented, pending, abandoned)

And I hereby appoint

George Gottlieb (Reg.No. 22,035)  
Michael I. Rackman (Reg.No. 20,639)  
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Maria A. Savio (Reg. No. 31,565)

whose address is Gottlieb, Rackman & Reisman, P.C., 270 Madison Avenue, New York NY 10016-0601 (telephone (212) 684-3900), jointly and severally, as my attorneys and/or agents, with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith.

Direct all correspondence and telephone calls to: Tiberiu WEISZ, Esq. at the address and telephone number shown above.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of first inventor, if any Aloys WOBLEN

Inventor's Signature

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